Contraception 100 (2019) 85–87

Contents lists available at ScienceDirect

Contraception

journal homepage: www.elsevier.com/locate/con

Case report

Unintentional IUD expulsion with concomitant menstrual cup use: a case series☆,☆☆

Rebecca Seale [a], Lisa Powers [a], Maryam Guiahi [a,*], Kate Coleman-Minahan [b]

[a] University of Colorado School of Medicine, Department of Obstetrics and Gynecology, Division of Family Planning, 12631 E. 17th Ave, MS B198-2, Aurora, CO 80045
[b] University of Colorado, College of Nursing, Mail Stop C288, 13120 East 19th Avenue, Aurora, CO 80045

ARTICLE INFO

Article history:
Received 25 January 2019
Received in revised form 24 March 2019
Accepted 27 March 2019

Keywords:
Intrauterine device
Expulsion
Menstrual cup
Long acting reversible contraception
Menstrual hygeine

ABSTRACT

Although reproductive-aged women use both menstrual cups and intrauterine devices (IUDs) simultaneously, it is unknown whether concomitant use reduces contraceptive effectiveness. We report seven cases wherein IUD expulsion occurred during concomitant menstrual cup use. Further research is needed to determine mechanisms of expulsion, predictors and strategies to avoid expulsions.

1. Introduction

Reproductive-aged women are increasingly selecting intrauterine devices (IUDs) for contraception and using menstrual cups (e.g., Diva Cup®, Lunette®) for sanitary protection [1,2]. However, little is known about whether concomitant usage poses risks. A prior study did not detect a difference in IUD expulsion rates based on cup use but was limited to a 6-week follow-up period and relied on historical data [3]. In this case series, we report seven cases of women who presented to University of Colorado or Children's Colorado Hospital outpatient facilities with IUD expulsion with menstrual cup usage. We obtained approval from the Colorado Multiple Institutional Review Board to review charts and to contact patients and obtain verbal consent for additional details.

1.1. Cases

To identify cases of IUD expulsion with concomitant menstrual cup use, we relied on provider referrals and electronic chart review. We called patients who had a subsequent IUD inserted to assess if another expulsion occurred. In Table 1, we present patient characteristics including age, IUD type, time to expulsion and subsequent outcomes. Below we describe mechanisms patients believed contributed to IUD expulsion and other relevant details.

1.1.1. Case 1

A 25-year-old nulligravida had a levonorgestrel 52-mg IUD in place for 1 week when she reported that she pinched the IUD strings during menstrual cup removal, resulting in a complete expulsion with acute limited abdominal pain coinciding with the event. She selected reinsertion and discontinued menstrual cup usage. Nine months later, she denied expulsion.

1.1.2. Case 2

A 22-year-old nulligravida expelled her levonorgestrel 52-mg IUD because she pulled the strings during cup removal 24 days after insertion. She subsequently selected an implant.

1.1.3. Case 3

A 25-year-old nulligravida had her levonorgestrel 52-mg IUD in place for 13 months prior to expulsion. She reported that during cup removal, the IUD strings "got caught" and she experienced painful cramping and a near vasovagal episode. Ultrasound examination demonstrated partial IUD expulsion. After counseling, she opted for reinsertion with her IUD strings cut flush with her cervix with ongoing cup usage. Eight months later, she denied expulsion.

☆ Declarations of interests: The Department of Obstetrics and Gynecology at the University of Colorado receives contraceptive research funding from Bayer Healthcare, Contramed, Medicines360, Merck & Co., NIH/NICHD and the Society of Family Planning.
☆☆ Funding sources: This research did not receive any specific grant from funding agencies in the public, commercial or not-for-profit sectors.

* Corresponding author.
E-mail addresses: Rebecca.Seale@ucdenver.edu (R. Seale), Lisa.Powers@ucdenver.edu (L. Powers), mguiahi@ucdenver.edu (M. Guiahi), Kate.Coleman-Minahan@ucdenver.edu (K. Coleman-Minahan).

https://doi.org/10.1016/j.contraception.2019.03.047
0010-7824/

Table 1
Characteristics of patients at time of initial IUD expulsion after menstrual cup use.

Case	Age	Prior IUD use	Menstrual cup used	IUD type	BMI (kg/m^2)	Expulsion date	IUD expulsion outcome	Time to expulsion	Subsequent contraception method	Menstrual cup use after expulsion
1	25	None	Divacup®	Liletta®	19.8	Dec 2017	Full	<1 week	IUD	No
2	22	None	Unknown	Liletta®	31.4	Dec 2017	Full	24 days	Implant	Unknown
3	25	None	Lunette®	Liletta®	25.9	Jan 2018	Partial	13 months	IUD	Yes
4	17	None	Divacup®	Mirena®	22.7	Apr 2015	Full	6 months	IUD	Yes
			Divacup®	Mirena ®	22.7	May 2015	Full	1 week	Implant	Yes
5	23	None	Divacup®	Liletta®	20.8	Apr 2017	Full	4 months	IUD	Yes
6	26	Mirena®	Luna Cup®	Paragard®	23.8	Jan 2016	Partial	10 months	IUD	Yes
			Luna Cup®	Paragard®	24.5	Feb 2016	Partial	1 month	IUD	No
			None	Paragard®	24.8	Dec 2016	Partial	10 months	Implant	No
7	16	None	Divacup®	Liletta®	23.4	Nov 2018	Partial	12 days	IUD	No

IUD = intrauterine device; Implant = contraceptive implant; BMI = body mass index.

1.1.4. Case 4

A 17-year-old nulligravida reported levonorgestrel 52-mg IUD expulsion during cup removal 6 months following insertion. She opted for reinsertion, which expelled again 1 week later during cup removal. She returned to clinic 1 year later when the previous expulsion was confirmed with ultrasound examination and x-ray. She subsequently selected implant contraception.

1.1.5. Case 5

A 23-year-old nulligravida reported painless levonorgestrel 52-mg IUD expulsion with cup removal 4 months after insertion and selected reinsertion. One year later, she denied expulsion with ongoing cup usage.

1.1.6. Case 6

A 23-year-old nulligravida had her copper IUD in place for 10 months when she presented with increased menstrual bleeding and ultrasound examination demonstrated partial IUD expulsion. She selected reinsertion and continued cup use and presented 2 months later with another partial expulsion. She had a third copper IUD placed with ultrasound guidance and discontinued cup use but experienced another expulsion 10 months later.

1.1.7. Case 7

A 16-year-old nulligravida had her levonorgestrel 52-mg IUD in place for 12 days when she reported heavy menstrual bleeding, pelvic pain and palpation of her IUD, which was confirmed 1 week later as a partial expulsion by her provider. She believed the suction during cup removal dislodged the IUD. After counseling, she selected reinsertion with her IUD strings cut flush with the cervix. Two months later, she denied expulsion.

1.2. Comment

Of the seven women in this series who experienced IUD expulsion while using a menstrual cup, six elected subsequent IUD placement, two of whom discontinued using menstrual cups and two of whom had IUD strings cut flush with the cervix. These seven cases suggest a potential association between menstrual cup usage and IUD expulsion that warrants further investigation, despite a prior investigation by Wiebe and Trouton [3] that did not detect an association. Importantly, the prior investigation was limited to a chart review of up to 6 weeks to assess early expulsions, whereas our study highlighted that four of the seven expulsions occurred after 6 weeks and up to 13 months postinsertion. Although the prior investigation did not report a difference in early expulsion rates among cup, pad and tampon users, they found that cup users were more likely to be using copper IUDs. Thus, it is possible that there is a mechanistic difference in expulsions between copper and hormonal IUDs, as our sample was enriched for hormonal IUD users. Additionally, our chart review and follow-up phone calls confirmed that women were using menstrual cups at the time of IUD expulsion and any subsequent expulsions, whereas the prior study relied on historical data and did not confirm the sanitary method at the time of expulsion in all cases. Finally, our younger cohort likely reflects the current population of cup and IUD users and increases generalizability of our findings.

There are two plausible mechanisms for IUD expulsion with menstrual cup use: (1) patients may unintentionally pull the IUD strings when removing the cup, and (2) the suction and vacuum created during cup application may dislodge the IUD. Six of the seven cases occurred with hormonal IUDs. However, the majority of patients seen at our clinics choose hormonal IUDs, so we cannot draw conclusions about risk of expulsion and type of IUD. It is possible that the size and material of different menstrual cups may create varying levels of suction or exert greater force on different IUD frames, which are subject to varying insertion techniques (e.g., IUD arms that bend down or up), and on different IUD formulations (e.g., 52-mg frames versus 19.5-mg or 13.5-mg frames).

There are no formal recommendations regarding menstrual cup usage among women with IUDs. We recommend educating patients about the potential for and warning signs of IUD expulsion. For those who desire concomitant use, we recommend counseling women to break the cup seal prior to removal and discussing the option of cutting the IUD strings flush with the cervix as a potential way to reduce risk of expulsion. For those women who desire cutting the strings flush with the cervix, we explain and document that doing so may consequently increase the likelihood of a difficult IUD removal.

With this report, we cannot draw definitive conclusions about risk of IUD expulsion with concomitant menstrual cup use. Approximately 6% of women experience an IUD expulsion, and 31% of women who select reinsertion may experience another expulsion [4,5]. All of our cases were young, nulligravida women who may also be representative of typical IUD and menstrual cup users and represent our clinical populations. However, the increase in menstrual cup use and its potential association with IUD expulsion are concerning. IUD expulsions can cause adverse symptoms, increase health expenditures and lead to unintended pregnancies. To provide high-quality healthcare, more research is needed to understand mechanisms of expulsion, risk factors and strategies to prevent expulsion.

References

[1] Daniels K, Daugherty J, Jones J, Mosher W. Current contraceptive use and variation by selected characteristics among women aged 15-44: United States, 2011-2013. Natl Health Stat Rep 2015;86:1–14.
[2] Jones L. Why are menstrual cups becoming more popular? BBC news. Available at: https://www.bbc.com/news/business-45667020/; 2018, Accessed date: 24 October 2018.

[3] Wiebe ER, Trouton KJ. Does using tampons or menstrual cups increase early IUD expulsion rates? Contraception 2012;86:119–21.
[4] Aoun J, Dines VA, Stovall DW, Mete M, Nelson CB, Gomez-Lobo V. Effects of age, parity, and device type on complications and discontinuation of intrauterine devices. Obstet Gynecol 2014;123:585–92.
[5] Bahamondes L, Díaz J, Marchi NM, Petta CA, Cristofoletti ML, Gomez G. Performance of copper intrauterine devices when inserted after an expulsion. Hum Reprod 1995;10:2917.